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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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January 5, 1999

Johnny Pappas, Senior Environmental Engineer
Cyprus Plateau Mining Corp.
Willow Creek Mine
847 Northwest Highway 191
Helper, Utah 84526

Re: Willow Creek As-Builts, Cyprus Plateau Mining Company, Willow Creek Mine, ACT/007/038-98G, File #2, Carbon County, Utah

Dear Mr. Pappas:

The technical analysis for the referenced amendment has been completed by our staff. Please respond to these deficiencies and the items outlined in Pete Hess's letter dated January 5, 1999 by February 23, 1999.

TECHNICAL ANALYSIS:

OPERATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

The As-built submittal includes discussion of topsoil salvage and storage as follows:

- Topsoil Salvage
- Soil Storage in Gravel Canyon

Topsoil Salvage

Subsequent permit modifications since construction have resulted in an overall increase of disturbance acreage for the Willow Creek Mine. Updated soils operational information concerning these modifications are documented. These permit modifications include the clean coal stockpile expansion, degassification wells, Schoolhouse Canyon Refuse soil salvage, and Barn Canyon Shaft installation. The following table summarizes each of these permit modifications in terms of acreage and total soils salvaged:

Permit Area	disturbed acreage	Soil Salvage Yd^3
Barn Canyon	0.46	906.4
Clean Coal Pile	3.91	10,639
Schoolhouse Canyon	7.35	15,600
Degassification wells	2.2	1,775

Within the Barn Canyon disturbance area, *Map Unit A, Perma sandy loam*, is mapped in an undisturbed area under predominantly Gambel's oak vegetation. An average 2 feet of suitable soil is available for salvage and will include a 0.107 acres. Pockets of soil salvage may reach depths of 35 inches, but are not included within the projected soil salvage volumes. This soil is classified as a Mollisol which have deep rich A horizons. *Therefore, this soil needs to be salvaged and segregated from other soils salvaged from this site.*

Topsoil Storage

As-built information states that long-term soil storage will be in the existing Gravel Canyon Topsoil stockpile for Barn Canyon, clean coal pile expansion and School House Canyon. The Barn Canyon project will generate 906.4 CY and shows soil storage in the existing Gravel Canyon stockpile. *For Barn Canyon, Map Unit A Mollisol (345 CY), needs to be salvaged, segregated and stored separately from the other salvaged soils for the purpose of returning this topsoil to Barn Canyon as the final top dressing during reclamation.*

Table 4.2-1, Soil Recovery and Storage Plans, and Table 4.2-1A, Justification For Soil Salvage Assumptions, have been updated to reflect these soil salvage activities.

Findings:

Information provided in the proposal is not considered adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must provide the following in accordance with:

R645-301-232 and R645-301-234, For Barn Canyon, Map Unit A Mollisol (345 CY), needs to be salvaged, segregated and stored separately from the other salvaged soils for the purpose of returning this topsoil as the final top dressing during reclamation.

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Information contained in Section 5.2.2.2, Soil Replacement Practices, shows updated soil replacement information. However, there are conflicts with soil recovery and replacement information contained in this

section when comparisons are made with Table 4.2-1 as follows:

- Willow Creek Surface Facilities Area. Section 5.2.2.2 shows 135,266 CY available for the Willow Creek Surface Facilities Area reclamation. After reviewing Table 4.2-1, the 135,266 CY volume includes an additional 15,600 CY, which is the volume of soil salvaged from Schoolhouse Canyon. The extra 15,600 CY of soil should be included in the volume of soil for Schoolhouse Canyon reclamation, not the Willow Creek Surface Facilities Area. The resulting volume should be 119,666 CY with an average replacement soil depth of 16.2 inches. As a note, the 135,266 CY gives 18.3 inches of soil replacement, not the 15 inches as shown.

- Schoolhouse Canyon Refuse Area - The volume of soil available for reclamation as shown in Section 5.2.2.2 is 97,000 CY. This volume should be increased by 15,600 CY for soil salvaged from the Schoolhouse Canyon during refuse expansion activities. This increases the total volume of soil available to 112,600 CY for a 26.8 inches effective soil replacement depth.

Findings:

Information provided in the proposal is not considered adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must provide the following in accordance with:

R645-301-120, There are conflicts with soil recovery and replacement information contained in Section 5.2.2.2 when comparisons are made with Table 4.2-1. For the Willow Creek Surface Facilities Area, the resulting volume should be 119,666 CY with an average replacement soil depth of 16.2 inches. For the Schoolhouse Canyon Refuse Area, the volume of soil available for reclamation should be 112,600 CY for a 26.8 inches effective soil replacement depth.

Maps are difficult to read and interpret. Clarity needs to be restored for contours and other pertinent features.

ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: R645-301-411. R645-301-323

Analysis:

Cultural Resource Maps

Map 11 is a map of cultural resources in the area of the mine. Included are several historic and prehistoric sites and paleontological resources. This map has been in the confidential file and needs to

remain there.

The new map has updated disturbed area information, but the baseline information has not changed. However, the new map is very difficult to read, and it is impossible to read all the contours. In this regard, it does not meet regulatory requirements and should be redone.

Vegetation Reference Area and Wildlife Maps

Map 5 shows vegetation in the region, including two reference areas near the Castle Gate Preparation Plant and two near the Willow Creek Mine. The reference area in Dry Canyon is not part of the revegetation success standards and should be eliminated. This map, like the others, does not have nearly the quality of the original, but, except for reference area locations, detailed information is not vital. Therefore, other changes are not required.

The Facilities Area Vegetation Map, Map 6, contains more detail of vegetation communities and sample locations in the area of the mine. On the new map, it is easier to tell the limits of the disturbed area boundary, but every other aspect is more difficult. The approved map is colored yellow and blue for areas previously disturbed by mining and not previously disturbed, and the new map is speckled in the areas of previous disturbance. Since the contour lines are also speckled, it becomes difficult to tell where the boundaries are.

The design of the original vegetation sampling was based on whether the site was previously disturbed, and the vegetation cover success standard is a weighted average of cover in areas previously disturbed and not previously disturbed by mining. Therefore, when sampling for revegetation success, it will be important to know exactly where the boundaries are. The map needs to clearly delineate these vegetation types. As with the other maps, the elevations on the contour lines meed to be legible.

The Regional Wildlife Map, Map 7, is unacceptable. The legend includes several designations for different categories of wildlife habitat, and, except for wetlands and riparian areas, it is impossible to tell exactly where the boundaries for these areas are. This information is on the approved version of this map. Also, it is impossible to tell where all but the major contours are.

Map 8 shows where biological surveys were taken in and near Willow Creek. There are several problems with this map:

1. The map still shows the "existing substation" from the old Willow Creek disturbed area.

2. The legend says "proposed" Willow Creek Mine surface disturbance area.

3. The relocated sections of Willow Creek are shown as a dark line, but the legend should include this as one of the symbols. Without knowing the location, it would be impossible to tell the creek has been relocated. In addition, the legend should include a note explaining the difference in notation for the samples taken before and after relocation.

4. It is understood this map is intended to show as-built conditions, but the contours are all for premining conditions.

Findings:

Information provided in the proposal does not meet the requirements of this section of the regulations. Prior to approval, the applicant must supply the following in accordance with:

R645-301-121.200 and R645-301-140, The maps provided in this submittal need to contain all the types of information that are set forth on U.S. Geological Survey maps of the 1:24,000 scale series. In addition, the maps need to clearly show revegetation reference areas, vegetation communities in the area of the mine, wildlife habitat, and current information.

RECOMMENDATIONS:

The proposal should not be approved until the problems discussed in this memorandum have been rectified.

SUMMARY:

The submittal of MRP information regarding "as built" status for the Willow Creek Mine was received in two stages; the first being 3 volumes relating to hydrology received October 27, 1997 and the second regarding various maps and text changes received September 29, 1998. This analysis will be written in a different manner, as it is felt that the standard type of review would take too much time and paper.

The following bullet statements are corrections or comments that should be made relative to the subject noted:

1) Page 4.5-55, Mine Ventilation, Paragraph 3

Degassification wells are necessary to reduce the risk of methane gas ignitions and possible mine fires. The submitted text states "The degassification wells will be installed before longwall mining begins 'in any given longwall panel and will be in the gob area after longwall mining passes the wells.' "

The Division cannot permit degas boreholes based on locations of "in any given longwall panel". This is unspecific, and constitutes a loss of permitting control by the agency. The text should be re-written to "the degassification wells will be implemented through proper UDOGM permitting actions, as determined by the in-mine ventilation requirements inherent with the coal extraction process."

2) Page 4.5-55a, Water transfer line from pond 001A to MSHA pond 013A

This line was implemented as a contingency method (ACT/007/038-98F) to de-water pond 001A to prevent a discharge of hydrocarbon contaminated oil to the Willow Creek drainage. The amendment indicated that this line was to be temporary only, and that its life will end once the re-injection of the mine waters is approved through DEQ/DWQ. I would recommend that the wording be re-phrased to indicate that the system was installed on a temporary basis, and will be removed upon the completion of the re-injection system.

3) Page 4.5-61, Paragraph 2, Coal Processing

The clean coal storage volume of 300,000 tons needs to be consistent with the volume on Page 4.5-57, (600,000 tons). Both need to be consistent with the storage volume permitted through ACT/007/038-97I, Clean Coal Pile Expansion.

4) Page 4.7-27, Paragraph 5, Pond 013A

"Pond 013A will be inspected weekly" needs revision. Cyprus has applied for and received a variance from MSHA to reduce the inspection frequency from every seven days to once a month, as of February 26, 1998. The status of this pond changed when the permittee began transferring water from pond 001A to 013A due to the interception of hydrocarbons in the D seam. The permittee needs to revisit this wording so as to prevent a compliance issue, both with MSHA and DOGM.

5) Page 5.3-1, makes reference to the Barn Canyon shaft site.

This amendment has yet to receive Division approval. Otherwise, it seems to be O.K.

6) Page 4.3-6, under 4.3.2.2, Potential Effects on Aquatic and Riparian Resources (Includes Sensitive Species), paragraph 2 on 4.3-6.

"In order to minimize the potential for accumulated coal fines to be carried to Willow Creek, coal fines accumulations will be cleaned up and disposed of when they reach **"an excessive depth".** This leaves the permittee wide open for enforcement action, as "excessive depth" is merely a determination left up to the inspector. The permittee is leaving that determination up to the amount of field experience held by the regulator. More specific wording relative to the volume of coal fines needs to be established; this will be what initiates the clean up and disposal of the fines.

7) Page 4.5-44, paragraph at bottom of page, discussing Pond 001A.

"Two" orifices acting as oil skimmers in the vertical riser are discussed, where four are implemented in the field. Map 24, "SEDIMENTATION POND 001" shows three two-inch schedule 40 decant inlet pipes at elevation 6165.9 feet. Although this is a very minor discrepancy, the text, map, and field conditions need to show consistency.

8) Page 4.7-10, Handling/treatment of in-mine intercepted groundwater

Quoting from paragraph four, "If it becomes necessary to discharge any excess mine drainage to the surface, discharge will be routed through the drainage and sediment control network to Sedimentation Pond 001, where it will be retained, treated if necessary, and sampled prior to discharge. Given that potential mine water discharge requirements are expected to be minimal and the specific control and sampling measures inherent in operation of the sediment ponds, any potential impacts to surface water resulting from mine water discharge should be effectively mitigated."

Referring to page 4.5-44, Pond 001A has been designed to accommodate a total retention capacity of 8.50 acre feet, which includes a three year accumulation of sediment (0.89 acft), **mine water discharge flows of 0.17 cubic feet per second,** and the ten year 24 hour storm event. The 0.17 cfs converts to 76 G.P.M., or 110,000 G.P.D.

With the interception of the hydrocarbons, it has become evident that the Mine is producing much more than 76 GPM of groundwater. The pumping off of water from the bottom of pond 001 to pond 013A in order to prevent the discharge of the oils to Willow Creek and thence the Price River was a temporary emergency measure, and cannot be considered to be a permanent measure. Upon reopening of the Willow Creek Mine, the volume of groundwater intercepted will more than likely remain the same. The permittee is currently looking at discharging water to the surface waters of the State, and/or re-injecting same back underground. If neither of these plans are in place upon start up of the Mine, the permittee must look at another method of treatment other than pond 001A for the ground water volume which is in excess of the 0.17 cfs allowed. The text of this submittal will then need to be revised to reflect this, when same occurs.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Water Monitoring Location Maps

Water monitoring location Map 15 was compared with the existing map to identify the changes made and determine whether inconsistencies exist. The following were noted.

- Spring location B25 was added to the map and appears to be an appropriate addition.
- Spring location B22-1 was previously identified as B22. Changes in the plan indicate the spring was changed from B22 to B22-1 because it was shown in a different location. However, B22-1 appears to be in the same location as B44 which is no longer shown on the map. The proposed change does not further clarify the discrepancies between B44 and B22. B44 and B22 should remain on the map as previously monitored sites, because they have water quality and monitoring data associated with them from the Castle Gate Mine.
- Spring B321 is labeled the Willow Creek Spring on the approved map 15 and was changed to Sulphur Spring in this amendment. The spring is referred to as Sulphur Spring on the water rights map 17. Considering existing site conditions, a question as to whether the spring is connected to the water found in the K-seam needs to be discussed in the plan. The fact that this spring was not monitored in the Castle Gate Plan leads one to believe it may be a new spring resulting from mining. A full baseline sweet should be conducted on this spring. See requirement R645-301-728.400 in this T.A.
- The Water Right associated with the surface water diversion in Section 35, R9E T12S needs to be shown. It is appears this diversion is tied to the CPMC rights (3013,3584, 3585).
- B3N(WR3598) is no-longer included on the water rights map 17 and, is relocated from it's original mapped location on map 15 from outside the permit area to inside the permit area. The changes in

mapping locations need to be clear, if the monitored location has moved, a new sampling number should be provided to understand variations in flow or water quality that may result.

- B211(WR3372)formerly B-1, is labeled twice on map 15. The northern most site was labeled B151 on the previous map.

- B33 and B32 were omitted from map 15. This information should be retained on the map as previously monitored sites.

- B22 and B44 were removed from the monitoring table #1, exhibit 12. The applicant has not met the R645-301-731.224 requirements and, needs to demonstrate that monitoring is no longer necessary to achieve the purpose established in monitoring these sites.

- UPDES sites 003 and 020 were removed from the map. UPDES point 003 was from a sedimentation trap that was removed on 9/17/97 and UPDES point 020 was associated with pond #10, also removed from this site.

Map 21B is noted as an interim drainage map. The word "interim" on this drainage map is unclear as to it's meaning and function. The map should refer to the interim **reclamation** drainage designs so, it's function is clear. RASCA-2 was not disturbed and was removed from the map. Because topsoil will be relocated and regrading and revegetation is to be established this map should also include the topsoil area as an interim RASCA. RASCA-5 does not provide adequate detail to determine post-mining drainage and reclamation configuration. The scale for this area needs to be enlarged. The map is not certified.

Findings:

The proposed amendment does not meet the requirements for the R645 regulations. The permittee should provide the following in accordance with:

R645-301-731.224. The plan needs to include a demonstration showing monitoring is no longer necessary to achieve the purpose monitoring was conducted for at sites B44, B22, B3N, B33, B32, B22 before removing these sites from the monitoring plan.

R645-301-512.140. Provide certified maps as required by 512.140.

R645-301-120. Provide a plan that is complete, clear and concise. 1) RASCA-5 does not provide adequate detail to determine post-mining drainage and reclamation configuration. 2) The word "interim" on map 21B is unclear as to it's meaning, adding reclamation to the title will clarify it's function. 3) Clarify the map location changes for B44 and B22, and B22-1. B44 and B22 should remain on the map as previously monitored sites, because they have water quality and monitoring data associated with them from the Castle Gate Mine. 4) Because topsoil will be relocated and regrading and revegetation is to be established this map should also include the topsoil area as an interim RASCA. 5) The water right associated with the surface water diversion in Section 35, R9E T12S needs to be shown. It appears this diversion is tied to the CPMC rights (3013,3584, 3585). 6) B3N is no longer on the water rights map 17 and, is relocated. The site should be given a new label and the site should be retained as previously monitored site on the map. 7) B33 and B32 should be retained as previously monitored sites. 8) Correct the location identification for B211 which is shown in two locations on map 15.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Groundwater

Although the applicant has supplied information on the construction changes page 4.5-55a continues to indicate water will not be pumped to the surface even though water currently is being pumped to the surface.

Stream buffer zones.

The previously approved plan the 100 foot buffer zone was to be maintained through the facilities area except in a 200 foot segment at the main access road bridge crossing and, along a 800 foot length of Willow Creek reconstruction. The final construction resulted in reduced buffer zone along two linear stretches, 300 feet long, totaling 600 feet plus the 800 linear feet Willow Creek reconstruction.

It is not clear which stream segments the previous approval included; however, the existing segments where the disturbed area intercepted the buffer zone should be provided on a map to clarify the sections that encroach on the buffer zone.

The proposed Barn Canyon ventilation pad is within an ephemeral drainage. An existing road will be utilized for access and maintenance issues. The existing road is aligned within the drainage through the canyon. Stream buffer zone regulations are applicable by definition because the site drains a watershed greater than one square mile. Variance will be granted for the Barn Canyon area when deficiencies from the Technical Analyses, September 16, 1998 are completed.

Diversions.

The bridge installation at a Willow Creek road crossing was not installed. It appears a culvert was installed at a different location in place of the bridge based on changes in 4.5-10.

A 400,000 gallon raw water storage tank is constructed southwest of the bathhouse near the mine portal and connects to the underground system.

The culverts are sized using a Manning's "n" of 0.016, Exhibit 13 submitted October, 1997. No information is provided to validate this value. Commonly 0.024 is accepted for CMP culverts for open channel flows.

Sediment control measures.

The sediment control plan for sedimentation ponds was changed to be designed for the 10-year 24-hour runoff event, previously presented as a 25-year 24-hour runoff event, according to the text changes made on page 4.5-40 in this amendment. The approved plan described pond 003 as a non-discharging pond. Presently this description is removed. Exhibit 13 design changes, submitted October 1997, are not yet reviewed to approve or dis-approve this information.

The sediment pond was approved to include a keyway as an embankment construction measure for long term embankment stability but, this was not constructed. The reported sediment volume is reduced to 0.003 acre-feet from 0.01 acre-feet in the approved permit. This information was not reviewed or approved at this time.

Variations in approved and implemented plans at the Willow Creek Mine also include removal of Pond 003 and re-design of pond 12A and 12B. This information was not reviewed or approved at this time. In the plan on page 4.7-35, sediment ponds were stated to gradually discharge, however, it is not clear how this would function with the existing treatment of in-mine water, which includes intercepted crude oil, being treated in the pond.

Water quality standards and effluent limitations.

The transfer of minewater from Sediment Pond No. 001 to Sediment Pond 003 is shown on Map 18B. This pipe is proposed to be used to transfer water to other ponds as well. However, the plan needs to describe the proposed criteria for transfer and that the ponds can still meet the sizing criteria and effluent limitations for sedimentation ponds.

Water Monitoring

The applicant submitted Table 4.7-2, this does not clearly distinguish between operational and baseline water monitoring. This information conflicts with information in Exhibit 12 of the existing plan and Table 3 under 2.1. As a result the water monitoring plan is not clear or consistent.

Findings:

This amendment does not meet the minimum requirements of this section. The amendment must include the following:

R645-301.740. Information needs to be provided to validate Manning's "n" of 0.016, Exhibit 13 submitted October, 1997 used for culvert design criteria.

R645-301.742.400. A new and updated PHC is required. Page 4.5-55a continues to indicate water will not be pumped to the surface even though water currently is being pumped to the surface.

R645-301-731.200. Table 4.7-2, needs to clearly distinguish between operational and baseline water monitoring. Table 4.7-2 in Exhibit 12, of the existing plan and Table 3 under chapter 2.1 need to be consistent.

R645-301-742-220. The plan needs to clearly identify the storage volume that is set aside to process in-mine water that is pumped to the ponds. The treatment process removing the oil from the water needs to be provided in the plan.

R645-301.121.300. Provide a clear list of those items which deviate from the approved plan for the three volumes in exhibit 13 submitted October, 1997.

RECOMMENDATION:

It is recommended that the applicant provide a clear list of those items which deviate from the approved plan for exhibit 13 submitted October, 1997. Deficiencies outlined in this amendment should be addressed prior to approval. Should the remaining Barn Canyon information be approved prior to approval of this amendment it will need to be carefully coordinated.

Technical Analysis:

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Determination of bond amount.

Analysis:

The current bond for the Willow Creek Mine is $11,949,205. The Permittee's reclamation bond based on the as-built material is $11,355,175.

The format for the as-built bond calculations is significantly different from the current bond format. The time required to update the Division's reclamation cost estimate would be approximately 2 to 4 weeks. Due to time constraints the Division is unable to completely revise their reclamation cost estimate at this time. The Division will update the reclamation cost estimate no later than the next midterm.

The Division reviewed the material submitted and is confident that the current bond amount of $11,949,205 would cover the reclamation cost. The Division is not confident in reducing the bond amount based on the Permittee's reclamation cost data.

The Division will need reclamation cross section based on the as-built topography to calculate the reclamation cost. If possible, the Permittee should submit a copy of the AutoCad files that contain the reclamation contours. The Division needs the AutoCad files to determine cut and fill quantities, centroids, haul distances and grades.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the Permittee must provide the following in accordance with

R645-301-800 and R645-301-521.190, The Permittee must provide the Division with the AutoCad files for the as-built reclamation cost sections.

If you have any questions, please call.

Sincerely,

Joseph C. Helfrich
Permit Supervisor

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cc: Price Field Office
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